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NASA Weekly Update

Week of Dec 26, 2006 – Jan 3, 2007

The Year in Review

NASA's Top Exploration and Discovery Stories of 2006: NASA moved forward in 2006 to extend humanity's exploration of the solar system and learn more about the universe and our home planet. The Space Shuttle returned to work building the International Space Station, and the agency began developing the next generation of spacecraft and outlined plans for returning to the moon as a stepping stone toward Mars. Space science missions found new evidence of water on Mars, sent the first-ever probes toward Pluto, brought back dust from a comet and launched new instruments to study the sun and the weather on Earth.

Next Stop - The Moon: America's Vision for Space Exploration, the long-term plan for sending humans to Mars and beyond, moved ahead in August with the selection of Lockheed Martin Corp. as the prime contractor to build the Orion crew exploration vehicle.

The Crew Launch Vehicle,Ares I top, and the Cargo Launch Vehicle, Ares V, bottom

Orion and its crew will be propelled into space by the Ares I launch vehicle. Larger equipment bound for the moon and Mars will ride atop the Ares V heavy launch vehicle. Ares I successfully completed systems requirement review during the fall of 2006. For more information, visit: http://www.nasa.gov/exploration.

Shuttle and Station Back to Business: During the space shuttle's 25th anniversary year, three missions resumed construction work on the International Space Station. Space shuttle Discovery's STS-121 mission in July was the second flight to the station since the Columbia accident in 2003. Astronauts proved new engineering designs and safety techniques and demonstrated that if needed the shuttle's robotic arm could serve as a platform for emergency repairs. Discovery also delivered a new crew member, increasing the station's crew size to three for the first time since May 2003. NASA followed up that flight with launches of STS-115 in September and STS-116 in December. For images and information, visit: http://www.nasa.gov/shuttle and http://www.nasa.gov/station.

Hubble Servicing Mission 'Go': In late October, NASA Administrator Michael Griffin announced plans for a fifth space shuttle servicing mission to the Hubble Space Telescope to extend and improve the observatory's capabilities through 2013. The announcement reversed an earlier decision, made following the Columbia accident, that further Hubble servicing missions would no longer be feasible. NASA revised that decision after a detailed analysis of safety issues for the shuttle crew and procedures necessary to carry out a successful repair and upgrade mission. The flight to Hubble is targeted for launch in 2008. For more information, visit: http://www.nasa.gov/hubble.

A Wet Red Planet?: New NASA images from the Mars Global Surveyor revealed bright new deposits seen in two gullies on Mars. The images suggest water carried sediment through the gullies sometime during the past seven years. These observations give the strongest

evidence to date that water still flows occasionally on the surface of the red planet. The new findings heighten intrigue about the potential for microbial life on Mars. Other Mars program activities included NASA's newest eye in the Martian sky, the Mars Reconnaissance Orbiter, photographed the rover and its surroundings. The new level of detail in the images from the orbiter will help guide the rover's exploration of Victoria. For more information, visit: http://www.nasa.gov/mars.

Deep Space Discoveries: The launch of the New Horizons spacecraft to Pluto in January began an extraordinary year of deep space activities. Scheduled to arrive at Pluto in 2015, the spacecraft will encounter Jupiter in 2007. NASA's Stardust mission completed a 2.88 billion mile round-trip odyssey to capture and return comet and interstellar dust particles to Earth. The Cassini spacecraft may have found evidence of liquid water reservoirs that erupt in Yellowstone-like geysers on Saturn's moon Enceladus. The unusual occurrence of liquid water so near the surface of Enceladus raises many new questions about the mysterious moon. Cassini also discovered two new rings around Saturn, confirmed the presence of two others and photographed something never before seen on another planet - a hurricane-like storm at Saturn's south pole. For more information, visit: http://www.nasa.gov/vision/universe/features/index.html.

Weather and Climate Studies: NASA's Earth research provided new discoveries during 2006 about our home planet and its climate. The agency launched the first satellite to provide three-dimensional images of clouds and a weather satellite to provide timely environmental information to meteorologists and the public. NASA also completed its "A-train" of six satellites flying in close proximity around Earth to gain a better understanding of key factors related to climate change. Research activities included a comprehensive hurricane study on how winds and dust from Africa influence the life of tropical cyclones in the Atlantic Ocean. Scientists studied the discovery that this year's ozone hole over the Antarctic had exceeded earlier observations for area and depth. Scientists announced that, based on Earth's average temperature, 2005 was one of the five warmest years in a century, and 2006 was one of the10 warmest. For more information, visit: http://www.nasa.gov/vision/earth/features/index.html.

This image shows wildfires in California, Red dots indicate the location of active fires.

A New Direction for Aeronautics: NASA's Aeronautics Research Mission Directorate restructured its research portfolio in 2006 to return to long-term, cutting-edge, fundamental research. This ensures the directorate conducts the high-quality, innovative research required to enable the next generation air transportation system and supports the nation's Vision for Space Exploration. Today, through close collaboration with academia, industry and other federal agencies, NASA's aeronautics research portfolio is better positioned to provide research that is directly aligned with national priorities. For more information, visit: http://www.aerospace.nasa.gov/.

Here Comes the Sun: NASA research on Earth's nearest star provided many firsts in 2006. Researchers developed a computer simulation to create a model of the sun's outer atmosphere. Scientists predicted the next solar activity cycle to be 30 to 50 percent stronger than the previous one. In March, NASA and Libyan scientists conducted joint activities to observe and study a total solar eclipse. This complemented the launch of NASA's twin Solar Terrestrial Relations Observatories mission (STEREO) spacecraft that will help researchers construct the first-ever three-dimensional views of the sun. For more information, visit: http://www.nasa.gov/stereo.

NASA's Nobel Laureate: On Dec.10, Dr. John C. Mather, senior astrophysicist and senior project scientist at NASA's Goddard Space Flight Center in Greenbelt, Md., received the 2006 Nobel Prize in physics in Stockholm. Mather is the first NASA civil-servant employee to win the Nobel Prize. Mather coordinated the science work of NASA's Cosmic Background Explorer satellite, which helped validate the big-bang theory of the origin of the universe. For more information, visit: http://www.nasa.gov/vision/universe/starsgalaxies/mather_spotlight.html.

International Cooperation: NASA worked in 2006 toward expanding its relationships with the spacefaring nations of the world. Administrator Michael Griffin and the leaders of other space agencies from around the world approved a new configuration and assembly plan for the International Space Station. Griffin also made

landmark visits to India and China to learn more about the emerging space programs of those nations. Deputy Administrator Shana Dale also met with leaders of the world's space agencies and launched an effort to engage other nations in building a Global Exploration Strategy to help ensure broad and active international cooperation as NASA pursues the Vision for Space Exploration.

The Year Ahead

Jan 16-17: National Media Day for STS-118, scheduled to launch on June 28, 2007.

Jan 18: A Russian-built Soyuz rocket is set to launch the automated supply ship Progress 24 to the restock the International Space Station in a flight to begin at Kazakhstan's Baikonur Cosmodrome.

Jan. 31: Virginia Space Day in Richmond, VA.

Feb 15: THEMIS launch from Cape Canaveral Air Force Station, FL. THEMIS will study the dynamic and colorful eruptions of auroras.

Feb 22: Texas Space Day in Austin, TX.

Mar: STS-117 launch from the Kennedy Space Center, FL. STS-117 will deliver a second starboard truss segment and a third set of solar arrays and batteries during the Space Shuttle Program's 21st mission to the International Space Station.

Apr 20: Opening of a Space Gallery at the Virginia Air & Space Center in Hampton, VA.

Apr 25: AIM launch from Vanderberg Air Force Base, CA. AIM is a NASA space mission designed to study the highest clouds in the earth's atmosphere -- clouds at the edge of space.

May 2: California Space Day in Sacramento, CA.

Jun 20: Dawn launch from Cape Canaveral Air Force Station, FL. The Dawn Mission will be the first time a spacecraft will orbit two planetary bodies on a single voyage as it studies Ceres and Vesta, two minor planets that reside in the vast asteroid belt between Mars and Jupiter.

The STS-117 patch symbolizes the continued construction of the International Space Station and our ongoing presence in space

Jun: STS-118 launch from Kennedy Space Center, FL. STS-118 will deliver the S5 Truss and will be the twenty-second mission to the International Space Station.

Aug 3: Phoenix launch from Cape Canaveral Air Force Station, FL. Phoenix is the new Mars lander mission and the first of NASA's scout missions. Phoenix will work to uncover clues in the martian arctic soils about the history of water and potential for habitability.

Sept: STS-120 launch from Kennedy Space Center, FL. STS-120 will be the twenty-third mission to the International Space Station and deliver the U.S. Node 2.

Oct: STS-122 launch from Kennedy Space Center, FL. STS-122 will deliver the Columbus European Laboratory Module and will be the twenty-fourth mission to the International Space Station.

Oct 7: GLAST launch from Cape Canaveral Air Force Station, FL. GLAST will focus on studying the most energetic objects and phenomena in the universe.

Dec: STS-123 launch from Kennedy Space Center, FL. STS-123 will deliver the pressurized section of the Kibo Japanese Experiment Logistics Module on the twenty-fifth mission to the International Space Station.

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